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A Study of the Asian Species of the Genus Ceropria (Coleoptera, Tenebrionidae, Diaperini) (Part 1)

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Abstract The Asian species of the genus *Ceropria* (Coleoptera, Tenebrionidae, Diaperini) is revised. In this part, the species-group of *C. superba* and a part of the species-group of *C. induta* (subgroup of *C. induta* and that of *C. amplipennis*) are dealt with. *Ceropria ardoini* sp. nov., *C. krausei* sp. nov. and *C. javanica* sp. nov. are newly described.

Key words: Taxonomy; Coleoptera; Tenebrionidae; Diaperini; Asian Ceropria.

The genus *Ceropria* is a diaperine tenebrionid beetles with serrate antennae, male fore tarsi thickened and male fore and/or middle tibiae distinctly curved in middle. More than 50 species have hitherto been known, about 35 from Asia, 10 from Africa and also 10 from Australia and New Guinea.

In their 'Monographie du genre Diaperis', Castelnau and Brullé erected the genus Ceropria in 1831. After the first description of Helops indutus from Java by Wiedemann in (1819), other authors described new species of the genus from Asia, i.e., Wiedemann (1823), Castelnau & Brullé (1831), Motschulsky (1873), Harold (1877), Chevrolat (1878), Fairmaire (1882, 1883, 1893, 1903), Lewis (1894), Gebien (1913, 1914, 1925), and Pic (1921, 1923, 1934), etc. Of these, Harold (1877) and Gebien (1925) may be worth noting. The former first gave a monograph of the genus Ceropria and dealt with 12 species. The latter, in 'Die Tenebrioniden (Coleoptera) des indo-malayischen Gebietes, unter Beruecksichtigung der Benachbarten Faunen, V', included in the genus 28 species and subspecies (11 new species from the Indo-malaysian district) and gave the foundation of his view.

Almost seventy years have passed since the publication of Gebien's work, a plentiful materials including unnamed species have been accumulated from Asia. I therefore started in a newer revisional study of the genus.

I wish to express my cordial thanks to Dr. Claude GIRARD, Muséum National d'Histoire Naturelle, Paris, and Mr. Malcolm Kerley, the Natural History Museum, London, for their invaluable help in the course of this study. Thanks are due to Dr. Ottó Merkl, Természettudományi Múzeum, Budapest, Dr. Lother Zerche, Deutsches Entomologisches Institut, Eberswalde, Dr. Olaf Jäger and Dr. Rüdiger Krause, Staatliches Museum für Tierkunde, Dresden, and Dr. Gerhard Scherer,

Kimio Masumoto

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viations. MNHNP: Muséum National d'Histoire Naturelle, Paris; utsches Entomologisches Intitut, Eberswalde; NHML: the Natural

ıseum, London; NSMT: National Science Museum (Nat. Hist.), Tokyo; aatliches Museum für Tierkunde, Dresden; TMB: Természettudományi

łudapest; ZSM: Zoologische Staatssammlung, München.

Genus Ceropria Castelnau et Brullé, 1831

TELNAU et BRULLÉ, 1831, Annls. Soc. nat. Paris, 23: 396. Type species: Ceropria VIEDEMANN, 1819).

ANCHARD, 1845, Hist. nat. Ins., 2: 30.

us Pic, 1921, Mél. exot.-ent., (34): 24.

ovoid to oblong-oval, strongly convex above; antennae mostly serrate; rather short with intercoxal space subfusiform and projected posteriad all process); mesosternum very short, depressed anteriorly and inserted rax, triangularly excavated in the middle opposite to prosternal process; arsi except for the terminal always widened; male fore and middle tibiae irved with inner margins gouged in middle and denticulate apically.

Diagnostic characters of this genus are not pronounced in females exerate antennae, so that females of the genus *Platydema*, which renbers of *Ceropria*, have often been determined as a species of *Ceropria*. described several *Platydema* species falsely as species of *Ceropria*.

s of the species-groups of *C. superba* and *C. laticollis*, the fore and middle ale are neither incurved nor gouged on the inner margins. Therefore, mens are often misregarded as *Platydema*.

ution. Oriental Region; Palaearctic Region (Chinese Subregion); Region (excluding New Zealand Subregion); Ethiopian Region.

Key to the Species-groups of the Genus Ceropria

e fore and/or middle tibiae not strongly incurved, with inner margins either gouged nor denticulate.

e abdominal sternites distinctly shortened medially with a thick memane along hind margins of visible sternites 3 and 4; apices of elytra 3

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- distinctly produced; antennae often not distinctly serrate; male genitalia larger and more complicated in shape......Species-group of C. superba
- 4 (1) Male fore and/or middle tibiae strongly incurved or bent, with inner margins mostly gouged in middle and denticulate apically.
- 5 (6) Elytra with reddish bands or patchesSpecies-group of C. humeralis

Species-group of C. superba

1. Ceropria superba (WIEDEMANN, 1823)

(Fig. 1)

Cnodalon superbum Wiedemann, 1823, Zool. Mag., 2 (1): 43. (Java).

Ceropria? paykulli Dalman, 1823, Analect. ent.: 60.

Ceropria? chrysostica HOPE, 1845, Trans. ent. Soc. London, 1845: 16.

Ceropria festiva Castelnau et Brullé, 1831, Annls. Soc. nat. Paris, 23: 400.

Distribution. Java, Sumatra, Mentawai Is., Borneo; Malay Peninsula; Burma; Laos; Vietnam; South China.

2. Ceropria versicolor Castelnau et Brullé, 1831

(Fig. 2)

Ceropria versicolor Castelnau et Brullé, 1831, Annls. Soc. nat. Paris, 23: 401. (Java). Ceropria impressifrons Fairmaire, 1882, Notes Leyd. Mus., 4: 222. Ceropria concolor Pic, 1923, Mél. exot.-ent., (39): 20. (Syn. nov.)

Distribution. Java, Sumatra, Borneo, Malay Peninsula; Burma; Laos; Sri Lanka.

3. Ceropria erthrocnema* Castelnau et Brullé, 1831

(Fig. 3)

Ceropria erthrocnema (scr. erythroctena) Castelnau et Brullé, 1831, Annls. Soc. nat. Paris, 23: 402. (Java).

Ceropria femorata Motschulsky, 1873, Bull. Soc. Natural. Mosc., 46 (1): 476.

^{*} CASTELNAU and BRULLÉ (1831) described this species under the spelling of "Diaperis erythroctena, in Mus. DEJ." However, HAROLD (1877) pointed out that this was a 'Druckfehler' of "Diaperia erythrocnema DEJ.", and this emendation was followed by Gebien (1911, 1925, 1940) and all the other authors. It is difficult to decide whether the emendation is justifiable or not, but at least the emended name can be regarded as a nomen conservandum. I prefer to adopt the spelling "erythrocnema" in this paper, leaving the final decision at the International Commission of Zoological Nomenclature.

Distribution. Java, Sumatra, Borneo.

4. Ceropria caesarea Gebien, 1925

(Fig. 4)

Ceropria caesarea Gebien, 1925, Philip. J. Sci., 27: 278. (Malacca).

Distribution. Malacca, Borneo.

5. Ceropria ardoini sp. nov.

(Fig. 5)

Blackish brown, with dorsal surface piceous and weakly and sericeously shining, each femur widely yellowish brown in middle. Oblong-ovate, rather strongly convex above.

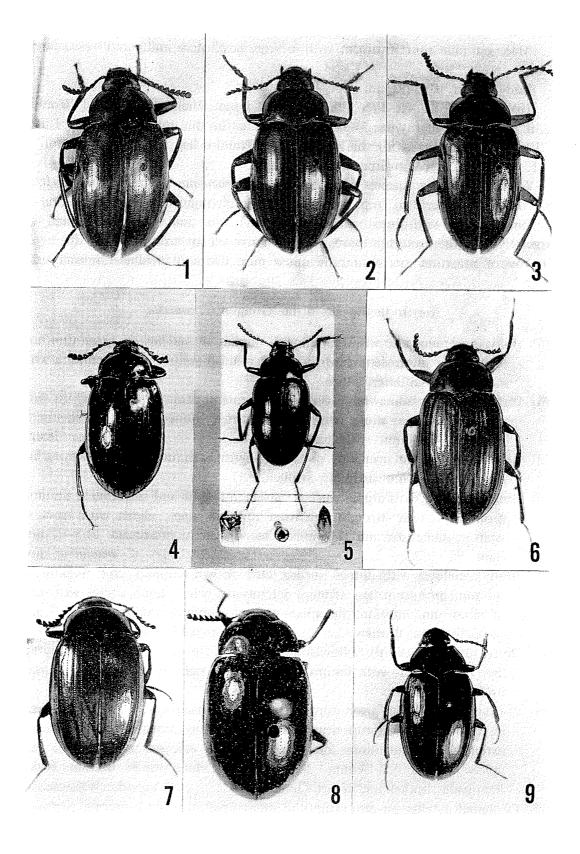
Head rather transverse; clypeus slightly depressed though feebly convex in middle, sparsely and finely punctate; gena with an oblique and raised margin before eye; frons rather closely punctate, impressed medially near fronto-clypeal suture, which is gently arcuate posteriad; eyes roundly produced laterad, diatone 3/4 times the width of an eye. Antenna moderately serrate on inner side and obtusely so in the other, reaching base of elytron, ratio of the length of each segment from basal to apical: 0.58, 0.2, 0.54, 0.41, 0.4, 0.38, 0.39, 0.38, 0.38, 0.37, 0.51.

Pronotum 1.57 times as wide as long, widest at apical 3/7, gently narrowed towards base and rather strongly so towards apex; apex widely, nearly straight in middle, weakly curved in lateral portions; base roundly produced posteriad in medial 1/3, nearly straight in two lateral 1/3; front angles narrowly rounded and gently produced anteriad; hind angles rectangular; disc gently convex, irregularly and finely punctate. Scutellum triangular with feebly arcuate sides, almost smooth but sparsely scattered with microscopic punctures.

Elytra 1.56 times as long as wide, about 3 times the length and 1.36 times the width of pronotum, widest at basal 3/7 and thickest at basal 2/7; disc with rows of small punctures, 3rd row with 8 punctures in a central 1 mm; intervals almost flat and wide, irregularly and microscopically punctate, the punctures evidently smaller than those on pronotum; apices produced downwards in male, slightly dehiscent and almost invisible from above, those in female distinctly produced posteriad, slightly dehiscent and visible from above.

Legs simple; each tibia with inner margin of apical half haired; ratios of the lengths of pro-, meso- and metatarsomeres: 0.53, 0.42, 0.37, 0.26, 1.2; 0.69, 0.31,

Figs. 1–9. Habitus of Ceropria spp. — 1, Ceropria suberba (Wiedemann), &; 2, C. versicolor Castelnau et Brullé, &; 3, C. erthrocnema Castelnau et Brullé, &; 4, C. caesarea Gebien, &; 5, C. ardoini sp. nov., holotype, &; 6, C. induta (Wiedemann), &; 7, C. opulenta Harold, &; 8, C. speciosissima Gebien, holotype, &; 9, C. auricollis Gebien, &.



0.28, 0.25, 1.21; 1.33, 0.39, 0.23, 1.24.

Male genitalia short fusiform, with a large basal piece and small fused lateral lobes.

Body length: 10.5-12 mm.

Holotype: &, 15. XI. 1966, Phou Khao Khouaï, Vientiane, Laos, J. Rondon leg. in MNHNP. Paratypes: 3 exs., same data as for the holotype; 3 exs., 15/30. X. 1966, same locality as for the holotype, A. Rondon leg.; 3 exs., 30. IV. 1967, 1 ex, 15. VII. 1966, Ban Van Eua, J. Rondon leg.

Notes. This new species resembles C. erythrocnema Castelnau et Brullé, 1831, originally described from Java, but can be distinguished from the latter by the robuster body with dorsal surface darker in colour and micro-shagreened, the longer clypeus, the pronotum more strongly narrowed towards the apex, the elytra with rows of punctures sparser and the apices more distinctly produced in each sex.

Key to the Species of the Group of C. superba

- 1 (6) Body more elongate without yellowish fasciae or patches on pronotum and elytra; legs more slender with femora reddish yellow; male genitalia with a smaller fused lateral lobes.
- 3 (2) Pronotum without cyaneous portions; elytra without cyaneous stripes; humeral portions not distinctly swollen.

- 6(1) Body rather ovate with yellowish fasciae or patches on pronotum and elytra; legs less slender with femora dark brown; male genitalia with a larger fused lateral lobes.
- 8 (7) O-shaped patches on pronotum not interrupted in postero-internal portions; each elytron with two longitudinal patches in posterior portion; lateral

margins indented near apices in male. 10–14 mm.	Java, Sumatra, Borneo,
Malay Peninsula; Burma; Laos; Sri Lanka	
C. versicolo	or Castelnau et Brullé

Species-group of C. induta

More than 30 species are included in this group, and I try to divide them into several subgroups.

Key to the Subgroups of the Species-group of C. induta

1	(2)	Elytron without patch or iridescence (dorsal surface reddish brown or
		blackish, unicolorous)
2	(1)	Elytron with patches or iridescence (multicolorous).
3	(4)	Body robust and ovate; elytra with iridescence
		Subgroup of C. amplipennis
4	(3)	Body oblong-oval; elytra with patches or iridescence.
5	(6)	Pronotum mostly with eyespots; frons mostly with a longitudinal sulcus
		medially (with exceptions, see the text in details)
		Subgroup of C. sulcifrons
6	(5)	Pronotum without eyespot; from without longitudinal sulcus.
7	(8)	Elytron with iridescence in humeral and postero-lateral portions
		Subgroup of <i>C. induta</i>

8 (7) Elytron with patches in humeral and postero-lateral portions.9 (10) Elytron with small patches in humeral and postero-lateral portions

..... Subgroup of *C. purpuriana*

A. Subgroup of C. induta

The species of this subgroup resemble each other in having iridescence on the elytra. Specific difference is not so distinct; it might be due to local colour variation.

6. Ceropria induta (WIEDEMANN, 1819)

(Fig. 6)

Helops indutus Wiedemann, 1819, Zool. Mag., 1 (3): 164. (Java). Ceropria subocellata Castelnau et Brullé, 1831, Annls. Soc. nat. Paris, 23: 398. (Java). Ceropria kinugasai Masumoto, 1982, Ent. Rev. Japan, 36: 151. (Taiwan).

Ditribution. Java, Sumatra, Nias Is., Engano Is. Sumba Is., Simalur Is.,

Кітіо Маѕимото

Borneo; Philippines, Sulawesi, Halmahera; Assam; Burma; Thailand; Indochina; Malay Peninsula; S. China; Taiwan; Ryukyu Is., Japan, Tsushima; Korea.

Notes. Gebien (1925) stated the distribution of this species as Ceylon and Andaman Is. The specimens from the former should belong to *C. purpuriana* Gebien. I have been unable to examine those from the latter.

7. Ceropria opulenta HAROLD, 1877

(Fig. 7)

Ceropria opulenta HAROLD, 1877, Stett. ent. Ztg., 39: 354. (Sumatra).

Distribution. Sumatra.

8. Ceropria speciosissima Gebien, 1914

(Fig. 8)

Ceropria speciosissima Gebien, 1914, Sarawak Mus. J., 2 (5): 19. (Limbang). Type depository: ZSM (holotype ♀).

Distribution. Borneo, Sumatra.

Notes. This species was originally described from Limbang, Sarawak, based on a female, and I was able to examine the holotype and also two female specimens in the collections of Természettudományi Múzeum and the Natural History Museum. It seems to be distributed in the limited area of West Borneo.

9. Ceropria auricollis GEBIEN, 1920

(Fig. 9)

Ceropria auricollis Gebien, 1920, Nova Guinea, 13 (3): 254. ('Holl. Neu-Guinea: Enta-Bai und Merauke').

Distribution. New Guinea, Buru Is.

10. Ceropria decolorata Gebien, 1921

(Fig. 10)

Ceropria decolorata Gebien, 1921, Philip. J. Sci., 27: 265. ('Indo-malayischen Gebiet'). Type depository: ZSM (holotype, ♂).

Distribution. Indo-Malaysian district.

11. Ceropria mindananica Gebien, 1925

(Fig. 11)

Ceropria mindananica Gebien, 1925, Philip. J. Sci., 27: 272. (Philippinen, Mindanao).

Distribution. Mindanao Is.

Key to the Species of the subgroup of C. induta

1 (4)	Punctures in rows on elytra sparser (6–8 punctures in a central 1 mm of 3rd row).
2 (3)	lically shining and distinctly iridescent; elytral iridescence smaller with the margin thicker. 11 mm. Borneo, Sumatra
3 (2)	Body elongate and less strongly convex; dorsal surface noticeably vitre-ously shining and less distinctly iridescent; elytral iridescence larger with the margin finer. Ca. 10.5 mm. 'Indo-Malaysian district'
4 (1)	
5 (6)	Dorsal surface vitreously shining, with iridescence deeper in colour; intervals microscopically punctate. 8–10 mm. New Guinea, Buru Is
6 (5)	Dorsal surface not vitreously shining; intervals obviously punctate.
7 (8)	Elytra with punctato-striae shallower and intervals flat; dorsal surface without coppery tinge. 9.5–10.5 mm. Mindanao Is.
	С. mindanaica Gebien
8 (7)	Elytra with punctato-striae deeper and intervals more or less convex; dorsal surface more or less with coppery tinge.
9 (10)	Pronotum with lateral portions iridescent; body wider. 10–10.5 mm. Sumatra
10 (9)	Pronotum with lateral portions almost black and not iridescent; body narrower. 9–10 mm. SE Asia, Japan, Korea C. induta Wiedemann

B. Subgroup of C. amplipennis

12. Ceropria amplipennis GEBIEN, 1925

(Fig. 12)

Ceropria amplipennis Gebien, 1925, Philip. J. Sci. 27: 267. (Medan, Sumatra). Туре depository. ZSM (♂).

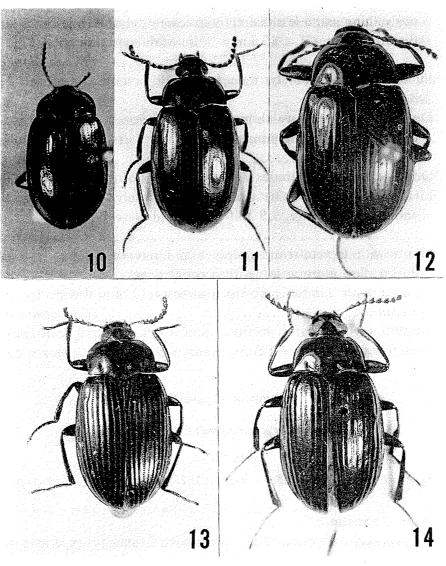
Distribution. Sumatra.

Notes. I have had an opportunity of examining Gebien's type, and it is a male specimen. In his original description, Gebien mentioned the type series consisted of 'Zwei Weibchen' but illustrated the male genitalia.

13. Ceropria krausei sp. nov.

(Fig. 13)

Body piceous, elytron with humeral and postero-lateral areas obscurely iridescent; dorsal surface feebly and sericeously shining. Ovate and weakly convex above. Head with a shallow longitudinal impression medially; apex of clypeus arcuate forwards; eyes rounded laterad, diatone 0.56 times the width of an eye. Antenna with ratio of the length of each segment from basal to apical: 0.36, 0.2, 0.31, 0.33, 0.29, 0.30, 0.31, 0.29, 0.29, 0.29, 0.34.



Figs. 10–14. Habitus of *Ceropria* spp. — 10, *C. decolorata* Gebien, holotype, 3; 11, *C. mindananica* Gebien, 3; 12, *C. amplipennis* Gebien, 3; 13, *C. krausei* sp. nov., holotype, 3; 14, *C. javanica* sp. nov., holotype, 3.

Pronotum twice as wide as long, widest at the middle, rounded towards apex and weakly narrowed towards base; disc gently convex, rather closely and finely punctate.

Elytra 1.45 times as long as wide, 3.2 times the length and 1.38 times the width of pronotum, widest at basal 3/8 and thickest at basal 1/4; disc punctato-striate, 3rd stria with 12 punctures in a central 1 mm; intervals remarkably convex, closely punctate; apices slightly produced posteriad in dorsal view.

Fore tibia with inner margin gently gouged at basal 2/5, thickened and denticulate in apical half; middle tibia with inner margin rather distinctly gouged in middle, thickened and denticulate in apical 2/5; ratios of the lengths of pro-, meso-and metatarsomeres: 0.34, 0.37, 0.27, 0.23, 1.4; 0.62, 0.37, 0.28, 0.23, 1.14; 1.58, 0.39, 0.39, 1.18.

Fused lateral lobes with lateral margins notched at apical 2/5.

Body length: 8.5-9 mm.

Holotype: \circlearrowleft , Buon Ma Thuot, S. Vietnam, 8. V. 1991, M. ITON leg., in NSMT. Paratypes. 1 ex., same data as for the holotype; 2 exs., Thu Dau Maï, Cochinchine, 10. IX. 1948, F. PIERRE leg.

Notes. Although the new species is peculiar in having the wide and flattened body with shallowly impressed frons, it resembles *C. induta* (WIEDEMANN), which is widenly distributed in East Asia.

14. Ceropria javanica sp. nov.

(Fig. 14)

This new species resembles *C. amplipennis* GEBIEN, but can be discriminated by the following characteristics:

Anterior margin of iridescence in postero-lateral portion of elytron more shapely undulate; head more finely punctate; diatone about 0.28 times the width of an eye. Antenna with ratio of the length of each segment from basal to apical: 0.34, 0.2, 0.37, 0.39, 0.38, 0.4, 0.4, 0.39, 0.38, 0.37, 0.39.

Pronotum narrower, 1.6 times as wide as long, subparallel-sided in basal half and narrowed towards apex; disc more finely punctate.

Elytra slightly more elongate, 1.45 times as long as wide, about 3.5 times the length and 1.38 times the width of pronotum, widest at the middle and thickest at basal 3/8; disc more deeply punctato-striate, 3rd stria with 12 punctures in a central 1 mm; intervals more strongly convex and more closely punctate; apices less noticeably produced posteriad. Apex of anal sternite rather distinctly truncate.

Fore and middle tibiae gently incurved, inner margin of the former gouged slightly before the middle, thickened and denticulate in apical 1/3, inner margin of the latter gouged at basal 2/5, thickened and denticulate in apical half; ratios of the lengths of pro-, meso- and metatarsomeres: 0.34, 0.32, 0.26, 0.22, 1.2; 0.79, 0.44, 0.29, 0.23, 0.98; 1.36, 0.57, 0.31, 1.11.

Kimio Masumoto

Male genitalia gently constricted between basal piece and fused lateral lobes, the former flattened widely in lateral portions and latter reflexed in middle.

Body length: 11 mm.

Holotype: \circlearrowleft , Java Occ., M. Gedeh, A L. Slg. R. Oberthür, Eing. Nr. 4, 1956, in TMB. Paratypes: 2 exs., Java Occident, Pengalengan, 4000', 1893, H. FRUHSTORFER, in MNHNP.

Key to the Species of the Subgroup of C. amplipennis

> > (To be continued)

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